

WHAT IS CLAIMED IS:

1. An electronic watermark detecting/inserting device for producing, in response to an input digital image which comprises a first electronic watermark inserted therein and which has a first DCT (Discrete Cosine Transform) coefficient, an output digital image which comprises said first electronic watermark inserted therein and a second electronic watermark inserted subsequently to said first electronic watermark in said output digital image and which has a second DCT coefficient, said device comprising:

a first DCT coefficient producing section (10) for producing said first DCT coefficient from said input digital image;

an electronic watermark detecting section (30) for detecting said first electronic watermark from said first DCT coefficient and for producing a request for insertion of said second electronic watermark;

an electronic watermark inserting section (20) for inserting, in response to said request for insertion of the second electronic watermark, said second electronic watermark into said input digital image subsequently to said first electronic watermark and for producing said output digital image which comprises said second electronic watermark inserted subsequently to said first electronic watermark in said output digital image and which has said second DCT coefficient;

a second DCT coefficient producing section (40) for producing said second DCT coefficient from said output digital image; and

a DCT coefficient supplying section (50) for supplying said second DCT coefficient from said second DCT coefficient producing section to said electronic watermark detecting section;

said electronic watermark detecting section detecting, when supplied with said second DCT coefficient from said DCT coefficient supplying section,

said second electronic watermark from said second DCT coefficient and producing a detection result representative of a detection intensity of said second electronic watermark to deliver said detection result to said electronic watermark inserting section;

said electronic watermark inserting section adjusting, in response to said detection intensity represented by said detection result, an insertion intensity of said second electronic watermark to be inserted into said input digital image.

2. An electronic watermark detecting/inserting device as claimed in claim 1, wherein:

said input digital image is a digital image according to a MPEG (Moving Picture Experts Group) standard.

3. An electronic watermark detecting/inserting device as claimed in claim 1, wherein:

said DCT coefficient supplying section is a selecting section connected not only to said second DCT coefficient producing section but also to said first DCT coefficient producing section for selectively supplying said first DCT coefficient from said first DCT coefficient producing section to said electronic watermark detecting section initially and for selectively supplying said second DCT coefficient from said second DCT coefficient producing section to said electronic watermark detecting section when said electronic watermark detecting section detects said first electronic watermark from said first DCT coefficient.

4. An electronic watermark detecting/inserting device as claimed in claim 1, wherein:

said electronic watermark inserting section adjusts said insertion intensity of the second electronic watermark so that said insertion intensity of the second electronic watermark is reduced when the detection intensity

represented by said detection result is high and that said insertion intensity of the second electronic watermark is increased when the detection intensity represented by said detection result is low.

5. An electronic watermark detecting/inserting device for producing, in response to an input video signal which comprises a first electronic watermark inserted therein, an output video signal which comprises said first electronic watermark inserted therein and a second electronic watermark inserted subsequently to said first electronic watermark in said output video signal, said device comprising:

an electronic watermark detecting section (30") for detecting said first electronic watermark from said input video signal and for producing a request for insertion of said second electronic watermark;

an electronic watermark inserting section (20") for inserting, in response to said request for insertion of the second electronic watermark, said second electronic watermark into said input video signal subsequently to said first electronic watermark and for producing said output video signal which comprises said second electronic watermark inserted subsequently to said first electronic watermark in said output video signal; and

a supplying section (50") for supplying said output video signal to said electronic watermark detecting section;

said electronic watermark detecting section detecting, when supplied with said output video signal from said supplying section, said second electronic watermark from said output video signal and producing a detection result representative of a detection intensity of said second electronic watermark to deliver said detection result to said electronic watermark inserting section;

said electronic watermark inserting section adjusting, in response to said detection intensity represented by said detection result, an insertion

intensity of said second electronic watermark to be inserted into said input video signal.

6. An electronic watermark detecting/inserting device as claimed in claim 5, wherein:

said input video signal is any one of a NTSC (National Television System Committee) signal and a PAL (Phase Alternation by Line) signal.

7. An electronic watermark detecting/inserting device as claimed in claim 5, wherein:

said supplying section is a selecting section for selectively supplying said input video signal to said electronic watermark detecting section initially and for selectively supplying said output video signal from said electronic watermark inserting section to said electronic watermark detecting section when said electronic watermark detecting section detects said first electronic watermark from said input video signal.

8. An electronic watermark detecting/inserting device as claimed in claim 5, wherein:

said electronic watermark inserting section adjusts said insertion intensity of the second electronic watermark so that said insertion intensity of the second electronic watermark is reduced when the detection intensity represented by said detection result is high and that said insertion intensity of the second electronic watermark is increased when the detection intensity represented by said detection result is low.